Space Weather Forecast

Issued on Sunday, 30 October 2022 at 01:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Storms on the 30th and 31st October.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with only low energy Common-class flares observed. There are four sunspot regions on the visible disc, three in the northeast quadrant and one about to rotate around the southwest limb. While the regions are all stable at the moment a couple of the regions in the northeast may have the potential to develop into something more magnetically complex. No Earth-directed CMEs (coronal mass ejections) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind speeds have been elevated due to coronal hole fast wind influences. Total magnetic field strength was briefly moderate before quickly declining to weak values. The north-south component has been mainly weak, but predominantly negative. Geomagnetic activity was mainly Active with a G1/Minor Storm period between 29/0600-0900 UTC, before easing to Unsettled from 29/1800 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be mainly Low, with a slight chance of isolated M-flares.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are forecast. Earth is currently being affected by a fast solar wind from a coronal hole. A further coronal hole fast wind is then likely to connect with Earth later in the period. Generally elevated winds are expected but with a declining trend. Geomagnetic activity is forecast to be mainly Unsettled to Active, with a chance of G1/Minor Storms on the 30th and 31st October, then mainly Quiet to Unsettled, with a declining risk of Active or G1/Minor Storms intervals through the remainder of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	30	25	20	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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